

Exploring the weird and wonderful of the PPE world

Written by Thato Tinte

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Have you ever thought about broadening your knowledge of personal protective equipment (PPE) beyond the traditional occupations such as mining, construction and manufacturing? THATO TINTE explores the use of PPE in uncommon occupations that are also deemed dangerous.

The human body is a delicate and fragile system, which is why safety needs to be an integral part of our daily lives. With danger and potential hazards around us every day, protection is crucial for our well-being.

PPE includes safety goggles, gas masks, hard hats and coveralls. If you didn't know any better, you'd be forgiven for thinking we're preparing for war.

Since PPE is any kind of clothing or equipment that can be used to help protect employees against accidents and injury in the workplace, it's easy to see what a broad field this can be.

PPE is largely used in the heavy-duty and labour-intensive work environments. The requirement for safety in the workplace does, however, make some form of PPE applicable in a much wider range of occupations.

In addition to mining, construction, manufacturing and security, there are those unusual and somewhat eccentric professions that also cannot function without PPE.

So let's step outside the box for a minute and appreciate the use of PPE in unconventional occupations that are also deemed dangerous.

Zoo keeping is without a doubt a risky job – no monkey business here! (Excuse the pun). Animal management includes feeding, moving, cleaning, interacting and, at times, restraining wild animals. PPE used in this area includes gumboots, gloves, safety goggles, masks and two-way radios.

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PPE certainly becomes vital to prevent diseases, injury or even death to the staff working in a zoo. In the United States, the Institutional Animal Care and Use Committee, at the University of Colorado Boulder's Research Integrity unit, states that zookeepers and curators must make use of various PPE that is specific to the different areas and animals being handled.

Beekeeping and bee removal is another unconventional profession that depends heavily on the use of PPE.

Bees, like tigers and lions, are volatile – all the more reason to use protective gear. PPE for beekeeping and removal includes coveralls, beekeeping hats with veils, gloves and gumboots that cover the ankles.

Firefighting is another profession where PPE is imperative. Firefighters are often exposed to dangerous fumes making it essential for them to use appropriate PPE. Protective gear for firefighters includes trousers, boots, jackets, safety vests and helmets with face shields that protect their eyes. Fire gloves and safety glasses or goggles are also provided.

Fire helmets do not, however, provide protection for the firefighter's ears, neck or face, which is why a flash hood is necessary and must be worn to ensure protection of these delicate exposed areas.

Over and above this protective gear, firefighters also wear other types of protective clothing depending on the type of fire being extinguished. In wild fires or veld fires, lightweight fire suits must be worn with industrial hard hats and spike-soled boots that are similar to those used by tree planters.

In extreme-heat fires, such as aircraft fires and chemical fires, a fire-proximity suit is worn. This suit has a heat-reflecting metallic material on its outer layer and is used for maximum protection against high-proximity fires.

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Then we have astronauts! According to the United States National Aeronautics and Space Administration (NASA) website, a human who goes into space without a spacesuit would become unconscious in 15 seconds, and suffer permanent brain damage in four minutes. With the temperatures reaching $-64,4^{\circ}\text{C}$ and rocketing to a whopping 120°C , PPE, literally, becomes a life saver.

The technical term for spacesuits is Extravehicular Mobility Unit (EMU). The EMU is a one-piece garment covering the astronaut from head to toe and is equipped with various valuable components.

These include the liquid cooling and ventilation undergarment used to cool the astronaut during spacewalks and the oxygen-providing backpack called the Primary Life Support Subsystem. All these components of the EMU help to protect the astronaut against orbiting debris, solar radiation, direct sunlight glare and lack of oxygen.

What amazing value PPE has for mankind.

*Extracts of the spacesuit information sourced from the NASA website.